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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/689,716 Confirmation No. : 3956
Applicant : Nelson GONZALEZ, et al.
Filed : October 22, 2003
TC/A.U. : 2181
Examiner : Not Yet Assigned
Title : Motherboard for Supporting Multiple Graphics Cards

Docket No. : 19463-0002
Customer No. : 24633

MAIL STOP PETITIONS
Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

PETITION TO MAKE SPECIAL UNDER 37 C.F. R. § 1.102 AND MPEP § 708.02 II

Applicants hereby submit this Petition under 37 C.F.R. § 1.102 and MPEP § 708.02 II to make the above-identified application special. Applicants state that this Petition meets the requirements of 37 C.F.R. § 1.102 and MPEP § 708.02 II. As stated in MPEP § 708.02 II, an application may be made special based upon actual infringement. Such a Petition may be granted based upon:

1. Payment of a fee under 37 C.F.R. § 1.17(h);

2. A statement by the applicant, assignee and/or attorney/agent registered to practice before the Office alleging:

   a. That there is an infringing device or product actually on the market or method in use;

   b. That a rigid comparison of the alleged infringing device product or method with the claims of this application has been made, and that, in his or her opinion, some of the claims are unquestionably infringed; and

c. That he or she has made or caused to be made a careful and thorough examination of the prior art or has a good knowledge of the pertinent art.

MPEP § 708.02 II also requires that applicant provide one copy of each of the references deemed mostly closely related to the subject matter encompassed by the claims if said references are not already of record.

A statement which meets each of the requirements of paragraph 2 above is provided as follows:

I. THERE ARE MULTIPLE INFRINGING PRODUCTS CURRENTLY ON THE MARKET

Applicants have identified at least four infringing devices that are currently being offered for sale and distribution in the United States. These known infringing products (product nos. X6DA8-G2, X6DAE-G2, X6DA8-G, and X6DAE-G, collectively the "Supermicro Infringing Products") are being offered by Supermicro Computer, Inc. ("Supermicro") of San Jose, California. The Supermicro Infringing Products can be viewed at the following URL: http://www.supermicro.com/products/motherboard/Xeon800/?chp=E7525, and the attached Appendix A provides a print out from the Supermicro website further describing each of the Supermicro Infringing Products and pertinent sections of a User Manual for the Supermicro Infringing Products.

These products are actually on the market and are being offered for sale. This is illustrated by the screen shots attached as Appendix B. These screen shots show a price comparison website (www.cnet.com) that lists multiple websites (such as www.ecost.com,

www.pcnation.com, and www.buystore.com) offering for sale the Supermicro Infringing Products.

II. COMPARISON OF INFRINGING DEVICE WITH CLAIMS

The above-identified application relates to a system and related method for providing a motherboard that is capable of accepting two or more high-performance graphics cards. In particular, the invention provides a system and method for supporting two or more high performance graphics cards (i.e., architecturally designed x16 graphics slots) on a single motherboard having high speed, scalable bus technology, such as PCI Express.

As is described below in greater detail, a rigid comparison of the claims of the above identified application has been made and, in the opinion of the undersigned, certain of the claims are infringed.

All of the Supermicro Infringing Products infringe at least several claims of the above-identified patent application. The following motherboard layout for the Supermicro Infringing Products is taken from a portion of the User Manual contained in Appendix A. Among the aspects of note in the motherboard layout are the following numbered elements:

(1) Dual Intel® Xeon Sockets;

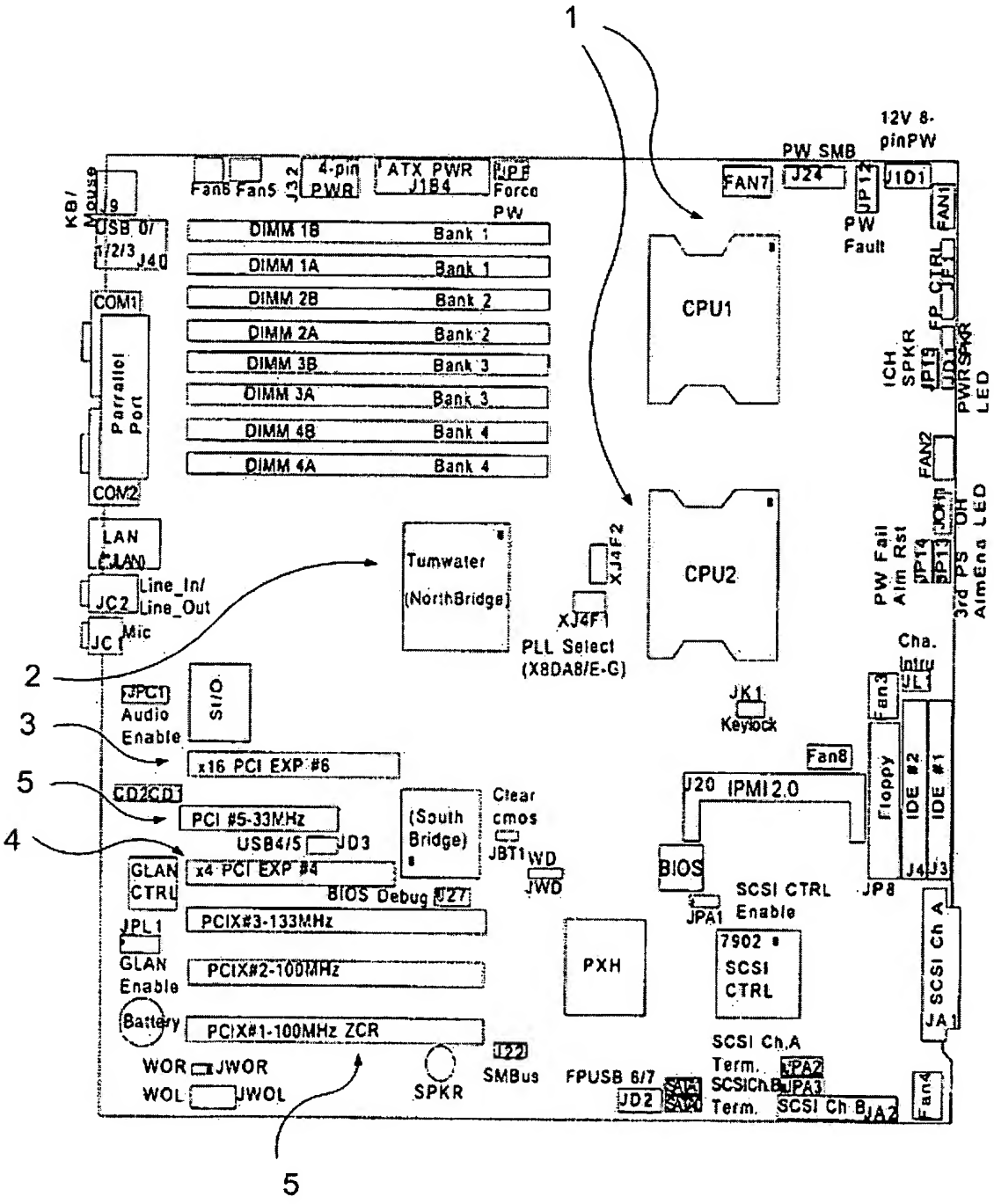
(2) Intel® E7525 (Tumwater) Chipset;

(3) x16 PCI-Express slot,

(4) x4 PCI-Express slot,

(5) 64-bit 133MHz PCI-X slot, two 64-bit 100MHz PCI-X slots, and 32-bit 33MHz PCI Slots.

MOTHERBOARD LAYOUT OF INFRINGING SUPERMICRO PRODUCTS



The relationship of the depicted elements of the motherboard layout to certain claims of the above identified application is summarized below in Table 1, and the reference numerals in the second column of Table 1 refer to the identified components of the Supermicro motherboard layout shown above. It is important to note that the chart below illustrates how certain of the claims of the above identified application read onto the above-identified Supermicro products. However, the listed claims are not the only claims infringed by the Supermicro products, and Applicants reserve the right to assert additional claims against the Supermicro products referenced above and to assert patent claims against other products.

TABLE 1: COMPARISON OF PATENT CLAIMS TO INFRINGING PRODUCTS

Claim of 10/690,716 Application	Corresponding elements of the Supermicro Products
1. A motherboard comprising: a chipset for managing data transfers within the motherboard;	From element (2), Intel® E7525 (Tumwater) Chipset
a scalable interconnect connecting to said motherboard; and	PCI Express is implemented by element (2), Intel® E7525 (Tumwater) Chipset
a plurality of high-speed video card slots connected to said interconnect.	From elements (3 and 4), x16 & x4 connections lead to two x16 PCI-Express Video Slots
9. A method for coupling two or more graphics controllers to a motherboard, the method comprising the steps of: providing a scalable interconnect for handling data transfers on said motherboard;	From element (2), PCI Express is provided by the Intel® E7525 (Tumwater) Chipset
dividing said scalable interconnect into multiple high-speed connections; and	From elements (3 and 4), the PCI Express interconnect is divided into x16 & x4 connections
routing each of said high speed	From elements (3 and 4), the x16 & x4

connections to a separate video slot, whereby each of said graphics controllers is connected to one of said video slots.	connections are routed to two x16 PCI-Express Video Slots
29. The motherboard of claim 1, wherein the video card slots comprise a first video card slot and a second video card slot, the interconnect comprising a first x16 connection to the first video card slot and a second smaller-scaled connection to the second video card slot.	From elements (3 and 4), the PCI Express interconnect is divided into x16 & x4 connections, and the x16 & x4 connections lead to two x16 PCI-Express video slots
41. A motherboard for supporting multiple video cards, the motherboard comprising: a processor socket adapted to receive a central processing unit (CPU); a scalable interconnect that provides data paths to the processor socket, wherein the scalable interconnect is selectively divided as needed to allocate the data paths; and video card slots connected to the interconnect, wherein each of the video card slots is specifically adapted for coupling to a graphics card.	 From element (1), Dual Intel® Xeon Sockets; PCI Express implemented by element (2), the Intel® E7525 (Tumwater) Chipset, and from elements (3 and 4), the PCI Express interconnect is divided into x16 & x4 data paths From elements (3 and 4), the x16 & x4 connections both lead to two video slots
42. The motherboard of claim 41, wherein the video card slots have substantially similar dimensions.	From elements (3 and 4), both of the x16 & x4 connections lead to x16 PCI-Express Video Slots
43. The motherboard of claim 42, wherein multiple similar graphics cards can be coupled to the motherboard.	Similar Video Cards can be connected to both x16 PCI-Express Video Slots of elements (3 and 4)
44. The motherboard of claim 43, wherein each of the video card slots is configured to couple with a graphics card designed to be used with a x16 connection.	From elements (3 and 4), both the x16 & x4 connections lead to x16 PCI-Express Video Slots

Thus, as illustrated above, the Supermicro Infringing Products described herein are motherboards having processor sockets (element 1) and an Intel® E7525 Tumwater Chipset (element 2) that implements a scalable PCI Express interconnect. The Supermicro Infringing Products use a x20 PCI Express interconnect that is scaled into two connections, a x16 connection and a x4 connection, that link the processor sockets (in element 1) to two video card slots (elements 3 and 4) adapted to accept two similarly dimensioned, high performance x16 video cards. The motherboards further contain other types of slots (in element 5) that are relatively slower and are not configured to receive high speed video cards.

III. PATENTABILITY SEARCH AND RELATED ART

Prior to filing the above-identified application, Applicants commissioned a third party patentability search related to the subject invention. Applicants reviewed and studied the results of the search, including any related references that were uncovered. After studying those references, a decision was made to file the above-identified application. A copy of the Information Disclosure Statement (IDS) which lists all of the references uncovered by the patentability search is attached as Appendix C. Copies of the references cited in the IDS are not attached because the IDS was previously filed and are thus already of record.

Conclusion

In view of the foregoing, Applicants respectfully request the granting of this Petition to Make Special Under 37 C.F.R. § 1.102 and MPEP § 708.02 II.

A payment of the fee under 37 C.F.R. § 1.17(h) is enclosed. If there are any additional fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1349.

If any additional information is required, the Office is invited to contact Applicants' representative at the telephone number listed below.

Respectfully submitted,

HOGAN & HARTSON LLP

By: _____
Ajit J. Vaidya
Reg. No. 43,214

David D. Nelson
Reg. No. 47,818

Dated: August 19, 2004

HOGAN & HARTSON LLP
555 13th Street, N.W.
Washington, D.C. 20004
(202) 637-5600
Customer No. 24633

Appendix A

SUPERMICRO®
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Home :: Contact Us ::

About Us | Products | Support | Newsroom | Where To Buy

- Products Home
- SuperServers
- Motherboards
  - Xeon™ 800MHz FSB
  - Xeon™ Solutions
  - Pentium® 4 Solutions
  - Itanium® 2 Solutions
  - Pentium® III Solutions
- Chassis
- Accessories
- Motherboard Matrix

Xeon™ Motherboards

E7520 E7525 E7320

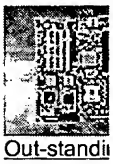
E7525 BOARDS

Supporting dual Xeon processors with an 800MHz system bus, the E7525 chipset optimized workstation platform utilizes **PCI-Express x16** expansion for top-of-the-line graphics.

Product Model	Form Factor	Memory	HDD
• **X6DA8-G2 NEW**	Ext. ATX	16 GB (DDRII)	Dual U320 2x SATA, ZCR
• **X6DAE-G2 NEW**	Ext. ATX	16 GB (DDRII)	2x SATA
• **X6DA8-G NEW**	Ext. ATX	16 / 32 GB	Dual U320 2x SATA, ZCR
• **X6DAE-G NEW**	Ext. ATX	16 / 32 GB	2x SATA
• **X6DAL-XG NEW**	ATX	24 GB	2x SATA
• **X6DAL-TG NEW**	ATX	24 GB	6x SATA
• **X6DAL-G NEW**	ATX	24 GB	2x SATA
• **X6DAR-8G NEW**	Ext. ATX	16 / 32 GB	Dual U320 2x SATA, ZCR
• **X6DAR-iG NEW**	Ext. ATX	32 GB	2x SATA

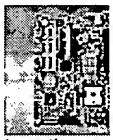
Product Hi

- **X6DH8-XG**



Out-standi workstatior combining technology for Xeon™ processors

- **X6DA8-G2**



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Note: Items in a Standard Retail Package may differ from items in a Standard Bulk Package.

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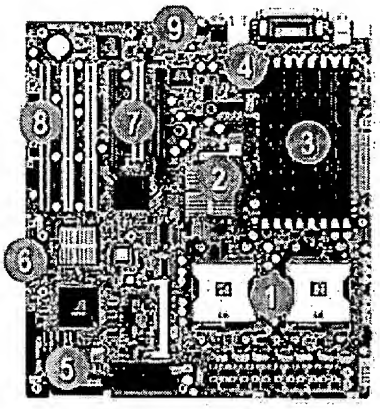

Key Features

1. Dual Intel® Xeon™ EM64T Support up to 3.60 GHz
2. Intel® E7525 (Tumwater) Chipset
3. Up to 16GB DDRII-400 SDRAM
4. Intel® 82546GB Dual-port Gigabit Ethernet Controller
5. Adaptec AIC-7902 Dual Channel Ultra320 SCSI
6. 2x SATA Ports via ICH5R SATA Controller
7. 1 (x16) & 1 (x4) PCI-Express, 1 x 64-bit 133MHz PCI-X, 2 x 64-bit 100MHz PCI-X, 1 x 32-bit 33MHz PCI Slots
8. Zero Channel RAID Support
9. AC'97 Audio, 6-Channel Sound

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Specifications

Physical Stats	
Form Factor	• Extended ATX
Dimensions	• 12" x 13.05" (33.1cm x 33.2cm)

Processor/Cache	
CPU	• Dual mPGA604 ZIF Sockets • Supports up to two **Intel® Xeon™** processor(s) with EM64T and 1MB L2 Integrated Advanced Transfer Cache up to 3.60 GHz
System Bus	• 800 MHz system bus

System Memory	
Memory Capacity	• Eight 240-pin DIMM sockets • Supports up to 16 GB DDRII-400 memory • Dual channel memory bus • Memory must be populated in pairs
Memory Type	• DDRII-400 registered ECC SDRAM 72-bit, 240-pin gold-plated DIMMs
DIMM Sizes	• 256 MB, 512 MB, 1GB, 2GB

Chassis (Optimized for X6DA8-G2)	
2U Chassis	• SC823S-550LP • SC823S-R500LP
3U Chassis	• SC833S-R760 • SC833S-550 • SC933S2-R760
Rackmount Tower / 4U	• SC743S1-R760 • SC743S1-650 • SC743S1-645 • SC742S-600 • SC742S-500 • SC942i-R760 • SC942i-600
Important Note	• To ensure system stability, a (minimum) ATX power supp [4-pin (+12V), 8-pin (+12V) a are required]

Expansion Slots	
PCI-Express	• 1 (x16) slot • 1 (x4) using (x16 slot) • **Note:** PCI-Express is limited

Memory Voltage	• 1.8 V only
Error Detection	• Corrects single-bit errors • Detects double-bit errors (using ECC memory) • Supports Intel® x4 Single Device Data Correction (SDDC)

On-Board Devices

Chipset	• Intel® E7525 chipset • MCH + ICH5R + PXH +82546GB
SATA	• ICH5R SATA Controller • RAID 0, 1, JBOD support
SCSI	• Adaptec AIC-7902 Controller • Dual-Channel Ultra320 SCSI • Host RAID 0, 1, 10, JBOD support
RAID	• Support for Zero-Channel RAID w/ Adaptec 2010S ZCR Card (Card NOT included)
IPMI	• Support for Intelligent Platform Management Interface v.2.0 (Optional)
Network Controllers	• Intel® 82546GB Dual Port Gigabit Controller • Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 output
Audio	• AC'97 audio CODEC with high quality 6-channel sound
Super I/O	• Winbond 83627HF chip

Input / Output

Serial ATA	• Two Serial ATA ports • Two SATA hard drives supported
IDE	• Dual EIDE channels support up to four UDMA IDE devices • Supports UDMA Mode 5, PIO Mode 4, and ATA/100
Floppy	• 1 Floppy controller; 1.44 MB, 2.88 MB, 3-mode support
LAN	• 2x RJ45 LAN port
USB	• 4x USB rear ports • 4x USB internal headers • USB 2.0 Compliant / 1.1 Compliant
Audio	• 1x Line In / Line Out / Microphone ports
Keyboard / Mouse	• PS/2 keyboard and mouse ports
Serial Ports	• 2 Fast UART 16550 serial ports
Parallel Port	• 1 ECP/EEP parallel port

	function add-on card device
PCI-X	• 1x 64-bit 133MHz PCI-X (3. • 2x 64-bit 100MHz PCI-X (3.
PCI	• 1x 32-bit 33MHz PCI (5V) sl

System BIOS

BIOS Type	• 8Mb Flash EEPROM with P BIOS
BIOS Features	• Plug and Play (PnP) • SMBIOS 2.3 • APM 1.2 • DMI 2.1 • ACPI 1.0

Management

Software	• Optional IPMI (Intelligent Pl Management Interface) 2.0 • SuperO Doctor III • Watch Dog • NMI
Power Configurations	• ACPI/APM Power Managen • Main Switch Override Mech • Wake-On-Ring (WOR) heac • Wake-On-LAN (WOL) head • Suspend to RAM (STR) • Keyboard Wakeup from Sof • CPU Fan auto-off in sleep m • Power-on mode control for / loss recovery • Internal/External modem rer on

PC Health Monitoring

CPU	• Monitors for CPU Cores, +3 ±12V & +5V Standby • CPU Core 4-Phase-switchir regulator with auto-sense fr 1.5V • Adjustable CPU clock frequ settings (via BIOS)
FAN	• Total of eight 4-pin fan heac • 8x fans with status monitorir • Status monitor with firmware on/off control • Low noise fan speed contro • Pulse Width Modulated (PW connector
Temperature	• Monitoring for CPU, chassis environment • CPU thermal trip support
LED	• CPU Overheat LED • System Overheat LED • Suspend-state indicator LEI
Other Features	• Chassis intrusion detection • Chassis intrusion header • SDDC

OS Compatibility

• Please see our OS Compatibility Chart

Parts List

Parts List

	Part Number	Qty	Description
X6DA8-G2	MBD-X6DA8-G2-O	1	X6DA8-G2 Motherboard
Manual(s)	MNL-0724	1	Motherboard Manual for X6DA8-G2
	MNL-669	1	Ultra 320 SCSI Manual
I/O Cables	CBL-022	1	ATX Floppy Cable
	CBL-034-U320	1	LVD, Ultra320 SCSI Cable
	CBL-036	1	ATA 66/100 IDE LP Cable
	CBL-044	1	2ft. Amphenol, SATA Cable
Driver Disk	CDR-INTC 1.1x	1	Version 1.1x CD
I/O Shield	CSE-PT53	1	Motherboard I/O Shield

Note: Items in a Standard Retail Package may differ from items in a Standard Bulk Package.

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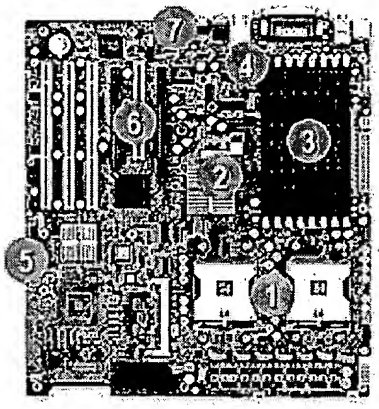

Key Features

1. Dual Intel® Xeon™ EM64T Support up to 3.60 GHz
2. Intel® E7525 (Tumwater) Chipset
3. Up to 16GB DDRII-400 SDRAM
4. Intel® 82546GB Dual-port Gigabit Ethernet Controllers
5. 2x SATA Ports via ICH5R SATA Controller
6. 1 (x16) & 1 (x4) PCI-Express, 1 x 64-bit 133MHz PCI-X, 2 x 64-bit 100MHz PCI-X, 1 x 32-bit 33MHz PCI Slots
7. AC'97 Audio, 6-Channel Sound

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Specifications

Physical Stats	
Form Factor	• Extended ATX
Dimensions	• 12" x 13.05" (33.1cm x 33.2cm)

Processor/Cache	
CPU	• Dual mPGA604 ZIF Sockets • Supports up to two **Intel® Xeon™** processor(s) with EM64T and 1MB L2 Integrated Advanced Transfer Cache up to 3.60 GHz
System Bus	• 800 MHz system bus

System Memory	
Memory Capacity	• Eight 240-pin DIMM sockets • Supports up to 16 GB DDRII-400 memory • Dual channel memory bus • Memory must be populated in pairs
Memory Type	• DDRII-400 registered ECC SDRAM 72-bit, 240-pin gold-plated DIMMs
DIMM Sizes	• 256 MB, 512 MB, 1GB, 2GB
Memory Voltage	• 1.8 V only
	• Corrects single-bit errors • Detects double-bit errors (using ECC

Chassis (Optimized for X6DAE-G2)	
2U Chassis	• SC823i-550LP
Rackmount Tower / 4U	• SC743i-R760 • SC743i-650 • SC743i-645 • SC742i-600 • SC742i-450 • SC942i-R760 • SC942i-600
Important Note	• To ensure system stability, a (minimum) ATX power supp [4-pin (+12V), 8-pin (+12V) a are required]

Expansion Slots	
PCI-Express	• 1 (x16) slot • 1 (x4) using (x16 slot) • **Note:** PCI-Express is limitec function add-on card device
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PCI	• 1x 32-bit 33MHz PCI (5V) sl

System BIOS	
	• 8Mb Flash EEPROM with P

Error Detection	memory) • Supports Intel® x4 Single Device Data Correction (SDDC)

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SATA	• ICH5R SATA Controller • RAID 0, 1, JBOD support
IPMI	• Support for Intelligent Platform Management Interface v.2.0 (Optional)
Network Controllers	• Intel® 82546GB Dual Port Gigabit Controller • Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 output
Audio	• AC'97 audio CODEC with high quality 6-channel sound
Super I/O	• Winbond 83627HF chip

Input / Output

Serial ATA	• Two Serial ATA ports • Two SATA hard drives supported
IDE	• Dual EIDE channels support up to four UDMA IDE devices • Supports UDMA Mode 5, PIO Mode 4, and ATA/100
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Audio	• 1x Line In / Line Out / Microphone ports
Keyboard / Mouse	• PS/2 keyboard and mouse ports
Serial Ports	• 2 Fast UART 16550 serial ports
Parallel Port	• 1 ECP/EEP parallel port

BIOS Type	BIOS
BIOS Features	• Plug and Play (PnP) • SMBIOS 2.3 • APM 1.2 • DMI 2.1 • ACPI 1.0

Management

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Temperature	• Monitoring for CPU, chassis environment • CPU thermal trip support
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Other Features	• Chassis intrusion detection • Chassis intrusion header • SDDC

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Parts List

	Part Number	Qty	Description
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Manual(s)	MNL-0724	1	Motherboard Manual for X6DAE-G2
I/O Cables	CBL-022	1	ATX Floppy Cable
	CBL-036	1	ATA 66/100 IDE LP Cable
	CBL-044	1	2ft. Amphenol, SATA Cable
Driver Disk	CDR-INTC 1.1	1	Version 1.1 CD
I/O Shield	CSE-PT53	1	Motherboard I/O Shield

Note: Items in a Standard Retail Package may differ from items in a Standard Bulk Package.

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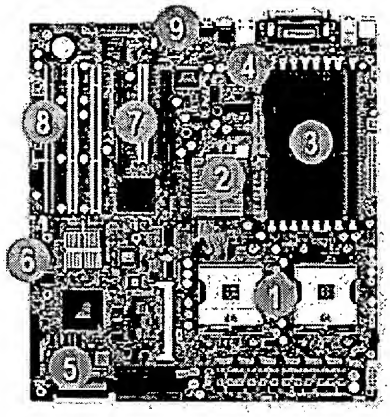

Key Features

1. Dual Intel® Xeon™ EM64T Support up to 3.60 GHz
2. Intel® E7525 (Tumwater) Chipset
3. Up to 16GB DDR 333 SDRAM (or) Up to 32GB DDR 266 SDRAM
4. Intel® 82545GM Single-port Gigabit Ethernet Controller
5. Adaptec AIC-7902 Dual Channel Ultra320 SCSI
6. 2x SATA Ports via ICH5R SATA Controller
7. 1 (x16) & 1 (x4) PCI-Express, 1 x 64-bit 133MHz PCI-X, 2 x 64-bit 100MHz PCI-X, 1 x 32-bit 33MHz PCI Slots
8. Zero Channel RAID Support
9. AC'97 Audio, 6-Channel Sound

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Specifications

Physical Stats	
Form Factor	• Extended ATX
Dimensions	• 12" x 13.05" (33.1cm x 33.2cm)

Processor/Cache	
CPU	• Dual mPGA604 ZIF Sockets • Supports up to two **Intel® Xeon™** processor(s) with EM64T and 1MB L2 Integrated Advanced Transfer Cache up to 3.60 GHz
System Bus	• 800 MHz system bus

System Memory	
Memory Capacity	• Eight 184-pin DIMM sockets • Supports up to 16 GB DDR 333 memory • Supports up to 32 GB DDR 266 memory • Dual channel memory bus • Memory must be populated in pairs

Chassis (Optimized for X6DA8-G)	
2U Chassis	• SC823S-550LP • SC823S-R500LP
3U Chassis	• SC833S-R760 • SC833S-550 • SC933S2-R760
Rackmount Tower / 4U	• SC743S1-R760 • SC743S1-650 • SC743S1-645 • SC742S-600 • SC742S-500 • SC942i-R760 • SC942i-600
Important Note	• To ensure system stability, a (minimum) ATX power supp [4-pin (+12V), 8-pin (+12V) a are required]

Expansion Slots	
PCI-Express	• 1 (x16) slot • 1 (x4) using (x16 slot)

Memory Type	• DDR333/266 registered ECC SDRAM 72-bit, 184-pin gold-plated DIMMs
DIMM Sizes	• 256 MB, 512 MB, 1GB, 2GB, 4GB**
Memory Voltage	• 2.5 V only
Error Detection	• Corrects single-bit errors • Detects double-bit errors (using ECC memory) • Supports Intel® x4 Single Device Data Correction (SDDC)

On-Board Devices

Chipset	• Intel® E7525 chipset • MCH + ICH5R + PXH +82545GM
SATA	• ICH5R SATA Controller • RAID 0, 1, JBOD support
SCSI	• Adaptec AIC-7902 Controller • Dual-Channel Ultra320 SCSI • Host RAID 0, 1, 10, JBOD support
RAID	• Support for Zero-Channel RAID w/ **Adaptec 2010S** ZCR Card (Card NOT included)
IPMI	• Support for Intelligent Platform Management Interface v.2.0 (Optional)
Network Controllers	• Intel® 82545GM Single Port Gigabit Controller • Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 output
Audio	• AC'97 audio CODEC with high quality 6-channel sound
Super I/O	• Winbond 83627HF chip

Input / Output

Serial ATA	• Two Serial ATA ports • Two SATA hard drives supported
IDE	• Dual EIDE channels support up to four UDMA IDE devices • Supports UDMA Mode 5, PIO Mode 4, and ATA/100
Floppy	• 1 Floppy controller; 1.44 MB, 2.88 MB, 3-mode support
LAN	• 1x RJ45 LAN port
USB	• 4x USB rear ports • 4x USB internal headers • USB 2.0 Compliant / 1.1 Compliant
Audio	• 1x Line In / Line Out / Microphone ports
Keyboard / Mouse	• PS/2 keyboard and mouse ports
Serial Ports	• 2 Fast UART 16550 serial ports
Parallel Port	• 1 ECP/EEP parallel port

	• **Note:** PCI-Express is limitec function add-on card device
PCI-X	• 1x 64-bit 133MHz PCI-X (3. • 2x 64-bit 100MHz PCI-X (3.
PCI	• 1x 32-bit 33MHz PCI (5V) sl

System BIOS

BIOS Type	• 8Mb Flash EEPROM with P BIOS
BIOS Features	• Plug and Play (PnP) • SMBIOS 2.3 • APM 1.2 • DMI 2.1 • ACPI 1.0

Management

Software	• Optional IPMI (Intelligent Pl Management Interface) 2.0 • SuperO Doctor III • Watch Dog • NMI
Power Configurations	• ACPI/APM Power Managen • Main Switch Override Mech • Wake-On-Ring (WOR) heac • Wake-On-LAN (WOL) head • Suspend to RAM (STR) • Keyboard Wakeup from Sof • CPU Fan auto-off in sleep m • Power-on mode control for / loss recovery • Internal/External modem rer on

PC Health Monitoring

CPU	• Monitors for CPU Cores, +3 ±12V & +5V Standby • CPU Core 4-Phase-switchir regulator with auto-sense fr 1.5V • Adjustable CPU clock frequ settings (via BIOS)
FAN	• Total of eight 4-pin fan heac • 8x fans with status monitorir • Status monitor with firmware on/off control • Low noise fan speed contro • Pulse Width Modulated (PW connector
Temperature	• Monitoring for CPU, chassis environment • CPU thermal trip support
LED	• CPU Overheat LED • System Overheat LED • Suspend-state indicator LEI
Other Features	• Chassis intrusion detection • Chassis intrusion header • SDDC

OS Compatibility

• Please see our **OS Compatibility Chart**

Parts List

Parts List

	Part Number	Qty	Description
X6DA8-G	MBD-X6DA8-G-O	1	X6DA8-G Motherboard
Manual(s)	MNL-0724	1	Motherboard Manual for X6DA8-G
	MNL-669	1	Ultra 320 SCSI Manual
I/O Cables	CBL-022	1	ATX Floppy Cable
	CBL-034-U320	1	LVD, Ultra320 SCSI Cable
	CBL-036	1	ATA 66/100 IDE LP Cable
	CBL-044	1	2ft. Amphenol, SATA Cable
Driver Disk	CDR-INTC 1.1	1	Version 1.1 CD
I/O Shield	CSE-PT53	1	Motherboard I/O Shield

Note: Items in a Standard Retail Package may differ from items in a Standard Bulk Package.
** 4GB Memory has not been verified due to temporary module unavailability.

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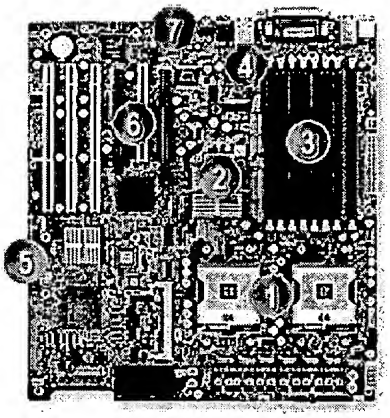
A Server Solutions Manufacturer



Key Features

1. Dual Intel® Xeon™ EM64T Support up to 3.60 GHz
2. Intel® E7525 (Tumwater) Chipset
3. Up to 16GB DDR 333 SDRAM (or) Up to 32GB DDR 266 SDRAM
4. Intel® 82545GM Single-port Gigabit Ethernet Controllers
5. 2x SATA Ports via ICH5R SATA Controller
6. 1 (x16) & 1 (x4) PCI-Express, 1 x 64-bit 133MHz PCI-X, 2 x 64-bit 100MHz PCI-X, 1 x 32-bit 33MHz PCI Slots
7. AC'97 Audio, 6-Channel Sound

Links & Resour

- Recommended
- Recommended
- Motherboard M
- Update Your B
- Download the Drivers and Ut

Specifications

Physical Stats	
Form Factor	• Extended ATX
Dimensions	• 12" x 13.05" (33.1cm x 33.2cm)
Processor/Cache	
CPU	• Dual mPGA604 ZIF Sockets • Supports up to two Intel® Xeon™ processor(s) with EM64T and 1MB L2 Integrated Advanced Transfer Cache up to 3.60 GHz
System Bus	• 800 MHz system bus
System Memory	
Memory Capacity	• Eight 184-pin DIMM sockets • Supports up to 16 GB DDR 333 memory • Supports up to 32 GB DDR 266 memory • Dual channel memory bus • Memory must be populated in pairs
Memory Type	• DDR333/266 registered ECC SDRAM 72-bit, 184-pin gold-plated DIMMs
DIMM Sizes	• 256 MB, 512 MB, 1GB, 2GB, 4GB**

Chassis (Optimized for X6DAE-G)	
2U Chassis	• SC823i-550LP
Rackmount Tower / 4U	• SC743i-R760 • SC743i-650 • SC743i-645 • SC742i-600 • SC742i-450 • SC942i-R760 • SC942i-600
Important Note	• To ensure system stability, a (minimum) ATX power supp [4-pin (+12V), 8-pin (+12V) a are required]
Expansion Slots	
PCI-Express	• 1 (x16) slot • 1 (x4) using (x16 slot) • Note: PCI-Express is limited function add-on card device
PCI-X	• 1x 64-bit 133MHz PCI-X (3. • 2x 64-bit 100MHz PCI-X (3.
PCI	• 1x 32-bit 33MHz PCI (5V) sl
System BIOS	

Memory Voltage	• 2.5 V only
Error Detection	• Corrects single-bit errors • Detects double-bit errors (using ECC memory) • Supports Intel® x4 Single Device Data Correction (SDDC)

On-Board Devices

Chipset	• Intel® E7525 chipset • MCH + ICH5R + PXH +82545GM
SATA	• ICH5R SATA Controller • RAID 0, 1, JBOD support
IPMI	• Support for Intelligent Platform Management Interface v.2.0 (Optional)
Network Controllers	• Intel® 82545GM Single Port Gigabit Controller • Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 output
Audio	• AC'97 audio CODEC with high quality 6-channel sound
Super I/O	• Winbond 83627HF chip

Input / Output

Serial ATA	• Two Serial ATA ports • Two SATA hard drives supported
IDE	• Dual EIDE channels support up to four UDMA IDE devices • Supports UDMA Mode 5, PIO Mode 4, and ATA/100
Floppy	• 1 Floppy controller; 1.44 MB, 2.88 MB, 3-mode support
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BIOS Type	• 8Mb Flash EEPROM with P BIOS
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Other Features	▪ Chassis intrusion detection ▪ Chassis intrusion header ▪ SDDC

Parts List

Parts List

	Part Number	Qty	Description
X6DAE-G	MBD-X6DAE-G-O	1	X6DAE-G Motherboard
Manual(s)	MNL-0724	1	Motherboard Manual for X6DAE-G
I/O Cables	CBL-022	1	ATX Floppy Cable
	CBL-036	1	ATA 66/100 IDE LP Cable
	CBL-044	1	2ft. Amphenol, SATA Cable
Driver Disk	CDR-INTC Rev. 1.1x	1	Version 1.1x CD
I/O Shield	CSE-PT53	1	Motherboard I/O Shield

Note: Items in a Standard Retail Package may differ from items in a Standard Bulk Package.
** 4GB Memory has not been verified due to temporary module unavailability.

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SUPER®

SUPER X6DA8-G
SUPER X6DAE-G
SUPER X6DA8-G2
SUPER X6DAE-G2

USER'S MANUAL

Revision 1.0

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates.

Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.

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Printed in the United States of America

Preface

About This Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPER® X6DA8-G/X6DAE-G/X6DA8-G2/X6DAE-G2 motherboard. The SUPER® X6DA8-G/X6DAE-G/X6DA8-G2/X6DAE-G2 supports single or dual Intel® Xeon Nocona™ processors at a 800 MHz front side bus. Based upon Intel's NetBurst microarchitecture with EM64T support, the Nocona processor supports the IA-32 software and includes features found in the Xeon™ processor such as Hyper Pipelined Technology, which includes a multi-stage pipeline, allowing the processor to operate at much higher core frequencies. Packaged in a 604-pin Flip Chip Micro Pin Grid Array(FC-mPGA4) platform in a Zero Insertion Force(ZIF) socket (mPGA 604), the Nocona Processor (800 MHz) supports Hyper-Threading Technology and is ideal for high performance workstation and server environments with up to two processors on one system bus. Please refer to the motherboard specifications pages on our web site (http://www.supermicro.com/Product_page/product-m.htm) for updates on supported processors. This product is intended to be professionally installed.

Manual Organization

Chapter 1 begins with a checklist of what should be included in your mainboard box, describes the features, specifications and performance of the motherboard and provides detailed information about the chipset.

Chapter 2 begins with instructions on handling static-sensitive devices. Read this chapter when you want to install the processor and DIMM memory modules and when mounting the mainboard in the chassis. Also refer to this chapter to connect the floppy and hard disk drives, SCSI drives, the IDE interfaces, the parallel and serial ports, the keyboard and mouse, the power supply and various control panel buttons and indicators.

If you encounter any problems, see **Chapter 3**, which describes trouble-shooting procedures for the video, the memory and the setup configuration stored in CMOS. For quick reference, a general FAQ [Frequently Asked Questions] section is provided.

Chapter 4 includes an introduction to BIOS and provides detailed information on running the CMOS Setup utility.

Appendix A gives information on BIOS POST messages.

Appendix B provides software and the OS installation instructions.

Table of Contents

Chapter 3: Troubleshooting

Chapter 4: BIOS

Appendices:

Chapter 1
Introduction

1-1 Overview

Checklist

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance. Check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer. All included with Retail Box.

One (1) Supermicro Mainboard

One (1) ribbon cable for IDE devices

One (1) floppy ribbon cable

One (1) SCSI-U320 cable (*X6DA8-G/X6DA8-G2)

One (1) SATA cable

One (1) I/O backpanel shield

One (1) Supermicro CD containing drivers and utilities

One (1) User's/BIOS Manual

One (1) SCSI User's Manual (*X6DA8-G/X6DA8-G2)

Two (2) CPU Mounting Brackets (SKT-0158) (pre-installed)

Contacting Supermicro

Headquarters

Address: SuperMicro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.
Tel: +1 (408) 503-8000
Fax: +1 (408) 503-8008
Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)
Web Site: www.supermicro.com

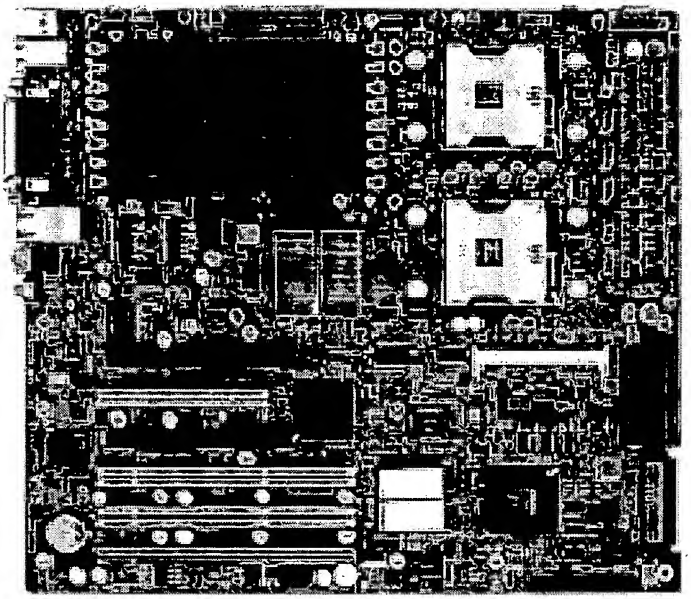
Europe

Address: SuperMicro Computer B.V.
Het Sterrenbeeld 28, 5215 ML
's-Hertogenbosch, The Netherlands
Tel: +31 (0) 73-6400390
Fax: +31 (0) 73-6416525
Email: sales@supermicro.nl (General Information)
support@supermicro.nl (Technical Support)
rma@supermicro.nl (Customer Support)

Asia-Pacific

Address: SuperMicro, Taiwan
D5, 4F, No. 16 Chien-Ba Road
Chung-Ho 235, Taipei Hsien, Taiwan, R.O.C.
Tel: +886-(2) 8226-3990
Fax: +886-(2) 8226-3991
Web Site: www.supermicro.com.tw
Technical Support:
Email: support@supermicro.com.tw
Tel: 886-2-8228-1366, ext.132 or 139

Figure 1-1. SUPER® X6DA8-G/X6DAE-G/X6DA8-G2/X6DAE-G2 Image

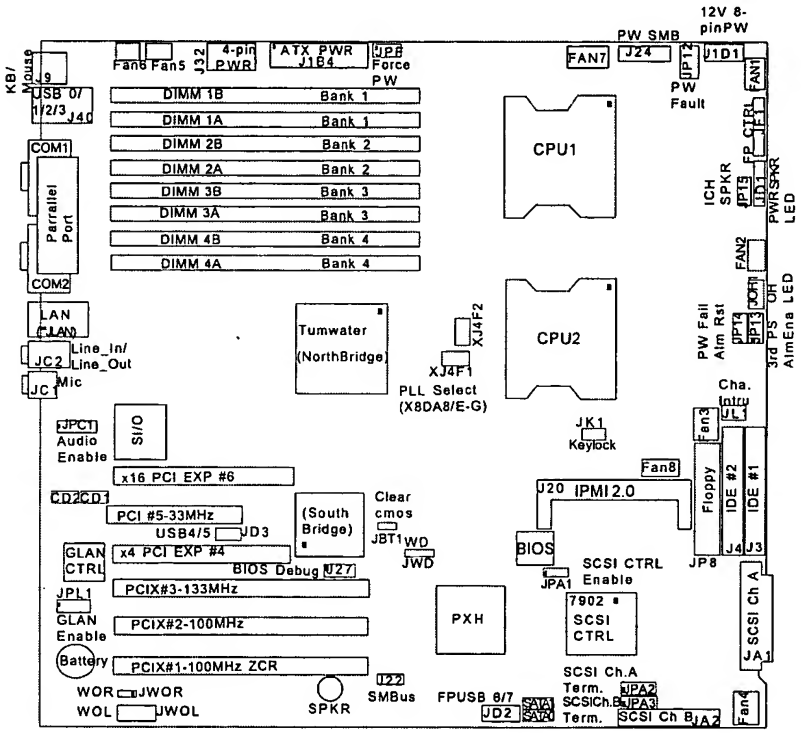


***Notes: The differences between these models are:**

1.SCSI is available for the X6DA8-G/X6DA8-G2 only.

2. There are two Gigabit LAN ports on the X6DA8-G2/X6DAE-G2 and only one Gigabit LAN on the X6DA8-G and the X6DAE-G.

Figure 1-2. SUPER● X6DA8-G/X6DAE-G/X6DA8-G2/X6DAE-G2 Motherboard Layout
(not drawn to scale)



Notes:

1. Jumpers not indicated are for test purposes only.
2. See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.
3. "■" indicates the location of Pin 1.
4. SCSI is available for the X6DA8-G/X6DA8-G2 only.
5. There are two Gigabit LAN ports on the X6DA8-G2/X6DAE-G2 and only one Gigabit LAN on the X6DA8-G and the X6DAE-G.

Quick Reference

Jumper	Description	Default Setting
JP13	3rd PWR Supply Failure Enable	Open (Disabled)
JPA1	SCSI Controller Enabled(X6DA8-G/G2)	Pins 1-2 (Enabled)
JPA2/JPA3	SCSI Ch. A/B Term.Ena.(X6DA8-G/G2)	Open(Enabled)
JPC1	Audio Enable/Disable	Pins 1-2 (Enabled)
JPF	Force Power	Open (Disabled)
JPL1	Giga-bit LAN Enable/Disable	Pins 1-2 (Enabled)
JWD	Watch Dog Enable	Pins 1-2 (Reset)
XJ4F1/XJ4F2	PLL Select (*X6DA8-G/X6DAE-G)	Closed (333MHz)

Connector	Description
ATX PWR (J1B4)	Primary 24-pin ATX PWR Connector
12V PWR (J1D1, J32)	12V 8-pin PWR/12V 4-pin CPU PWR Connectors
COM1 (J6)/COM2 (J39)	COM1/COM2 Serial Port Connectors
FAN #1-#8	CPU Fan1/CPU Fan2/Chassis Fans Headers
DIMM#1A-#4B	Memory (RAM) Slots#(1A,1B, 2A,2B, 3A,3B,4A,4B)
GLAN1	G-bit Ethernet Ports
GLAN2	G-bit Ethernet Ports (*X6DA8-G2/DAE-G2 only)
IDE1(J3), IDE2(J4)	IDE1/2 Hard Disk Drive Connectors
J9	Keyboard/Mouse
J20	IPMI 2.0 Connector
J22	System Management Bus Connector
J23	Parallel (Printer) Port
J24	PWR System Management Bus
JA1, JA2	Ultra 320 SCSI Channel A,Channel B(X6DA8-G/G2)
JBT1	CMOS Clear (JBT1 is a pad:See Chapter 2)
JD1	PWR LED (Pins1-3), Speaker (Pins 4-7)
JF1	Front Panel Control
JK1	Keylock
JL1	Chassis Intrusion Header
JOH1	Overheat LED
JP8	Floppy Disk Drive Connector
JP12	Power Fault Connector
JP14	PWR Fail Alarm Reset
PCIX#1,#2,#3(J12-J14)	PCIX-100MHz ZCR,PCIX-100MHz/PCIX-133MHzslots
PCI#5(J19)	PCI-33 MHz slot
PCI-Express#4,#6	x4/x16 PCI-Express slots
SATA0/1	Serial ATA0/Serial ATA1 Headers
JWOL	Wake-on-LAN Header
JWOR1	Wake-on-Ring Header
USB#0-3(J40)	(Back Panel) Universal Serial Bus Ports
USB#4-5,6-7(JD3, JD2)	(Front Panel) Universal Serial Bus Headers

Motherboard Features

CPU

- Single or dual Intel® 604-pin 64-bit/32-bit Nocona™ processors at 800 MHz front side (system) bus speed. (*Notes: CPU FSB speed is set by Manufacturer. Please do not change the FSB setting. Please refer to the support section of our web site for a complete listing of supported processors (http://www.supermicro.com/TechSupport.htm.)

Memory

- Eight 244-pin DIMM sockets supporting up to 16 GB Registered ECC DDR2-400 (PC3200) SDRAM (*X6DA8-G2/X6DAE-G2 only)
- Eight 184-pin DIMM sockets supporting up to 32 GB Registered ECC DDR-333/266 (PC2700/PC2100)SDRAM(-16 GB for PC2700, 32GB for PC2100) (*X6DA8-G/X6DAE-G only)

Notes: 1. Memory size is set via BIOS. 2. Interleaved memory; requires memory modules to be installed in pairs. See Section 2-3 for details.

Chipset

- Intel E7525 (Tumwater) chipset

Expansion Slots

- One PCI-e slot (*x16@4GB/sec)
- One PCI-e slot (*x4@2GB/sec)
- Three 64-bit PCI-X slots (*One 64-bit PCI-X-133 slot, one PCI-X-100 slot, One PCI-X-100MHz ZCR)
- One 32-bit 33MHz PCI slot (w/PCI Graphic Card support)

BIOS

- 8 Mb AMI® Flash ROM
- APM 1.2, DMI 2.1, PCI 2.2, ACPI 1.0, Plug and Play (PnP), SMBIOS 2.3

PC Health Monitoring

- Onboard voltage monitors for CPU cores, chipset voltage, 3.3V, +5V, +12V and 3.3V standby
- Fan status monitor with firmware/software on/off control via BIOS
- CPU/chassis temperature monitors
- Environmental temperature monitor and control via Supero Doctor III
- CPU fan auto-off in sleep mode
- CPU slow-down on temperature overheat

- CPU thermal trip support for processor protection, +5V standby alert LED
- Power-up mode control for recovery from AC power loss
- Auto-switching voltage regulator for CPU core
- System overheat LED and control
- Chassis intrusion detection
- System resource alert via Super Doctor III

ACPI Features (optional)

- Microsoft OnNow
- Slow blinking LED for suspend state indicator
- Main switch override mechanism

Onboard I/O

- Adaptec 7902 dual Ultra 320 SCSI (*X6DA8-G/X6DA8-G2 only)
- One IPMI 2.0
- One Intel 8254x Gigabit Ethernet controller(*X6DA8/X6DAE-G:1 LAN, X6DA8/X6DAE-G2:2 LAN ports)
- 2 EIDE Ultra DMA/100 bus master interfaces
- 1 floppy port interface (up to 2.88 MB)
- 1 EPP/ECP Parallel Port
- PS/2 mouse and PS/2 keyboard ports
- Up to eight USB 2.0 (Universal Serial Bus):

(4 Back Panel USB ports & 4 Front Panel USB headers)

- 2 serial ports
- 2 Serial ATA support (w/RAID 0/RAID 1 support)

Other

- Internal/external modem ring-on
- Wake-on-Ring (WOR)
- Wake-on-LAN (WOL)
- Console redirection

CD/Diskette Utilities

- BIOS flash upgrade utility and device drivers

Dimensions

- ATX Ext. 12" x 13.05" (304.8 x 331.5 mm)

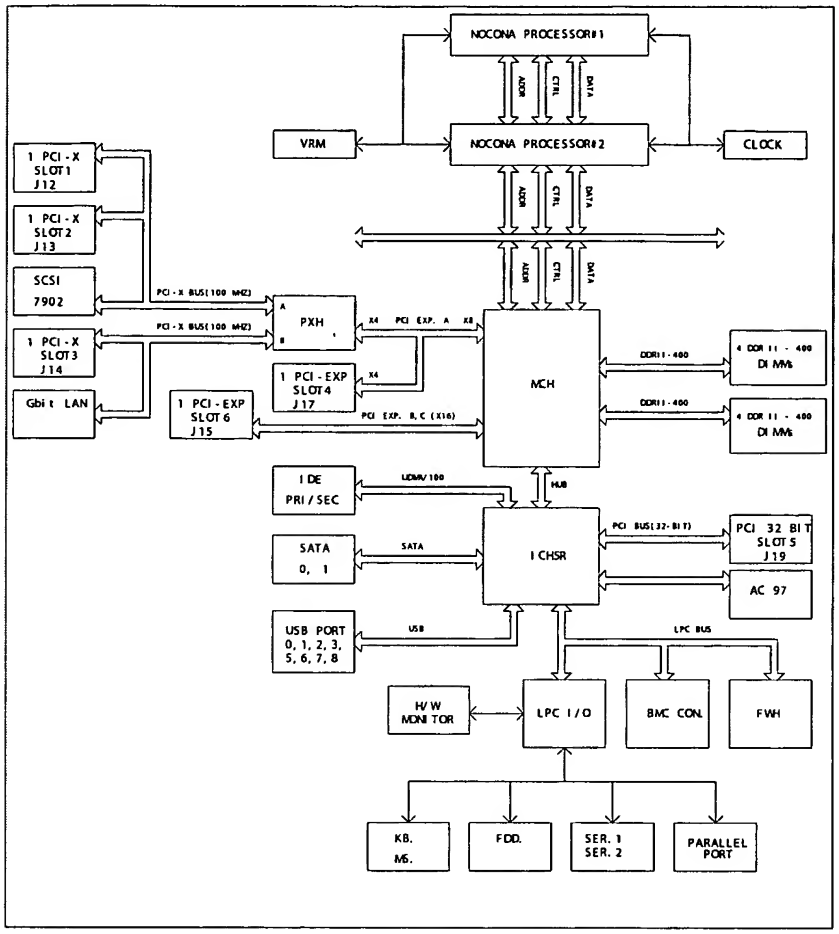


Figure 1-9. Block Diagram of the E7525 Tumwater Chipset

Note: This is a general block diagram. Please see the previous Motherboard Features pages for details on the features of each motherboard.

1-2 Chipset Overview

Built upon the functionality and the capability of the E7525 Tumwater chipset, the X6DA8-G/X6DAE-G/X6DA8-G2/X6DAE-G2 motherboard provides the performance and feature set required for dual processor-based computer systems, with configuration options optimized for communications, presentation, storage, computation or database applications. The Intel E7525 Tumwater chipset consists of the following components: the E7525 Tumwater Memory Controller Hub (MCH), the I/O Controller Hub (ICH5R), and the PCI-X Hub (PXH).

The E7525 Tumwater MCH supports single or dual Nocona processors with Front Side Bus speeds of up to 800 MHz(*Note). Its memory controller provides direct connection to two channels of registered DDR333 or DDR2 400 with a marched system bus address and data bandwidths of up to 2.67 GB/s (DDR 333) or 3.2 GB/s (DDR2-400) per channel. The E7525 Tumwater also supports the new PCI Express high speed serial I/O interface for superior I/O bandwidth. The MCH provides configurable x16 PCI Express interfaces which may alternatively be configured as two independent x8 PCI Express interfaces. These interfaces support connection of the MCH to a variety of other bridges that are compliant with the PCI Express Interface Specification, Rev. 1.0a, such as 82546GB GLAN Adaptor, the Dobson I/O processor, H/W RAID controllers and TCP/IP Off-load engines. The MCH interfaces with the ICH5R ICH I/O Controller Hub via HI 1.5 Hub Interface. The PXH can be configured to support for 32- or 64-bit PCI devices running at 33 MHz, 66 MHz, 100 MHz, and 133 MHz.

ICH5R System Features

In addition to providing the I/O subsystem with access to the rest of the system, the ICH5R I/O Controller Hub integrates many I/O functions.

The ICH5 I/O Controller Hub integrates: 2-channel Ultra ATA/100 Bus Master IDE Controller, two Serial ATA (SATA) Host w/RAID0, RAID1 support, SMBus 2.0 Controller, LPC/Flash BIOS Interface, PCI 2.2 Interface and System Management Controller.

(*Notes: The CPU FSB speed is set at 800 MHz by the Manufacturer. Please do not change the CPU FSB setting.)

1-3 Special Features

BIOS Recovery

The BIOS Recovery function allows you to recover your BIOS image file if the BIOS flashing procedure fails (see Section 3-3).

Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must hit the power switch to turn it back on) or for it to automatically return to a power-on state. See the Power Lost Control setting in the Advanced BIOS Setup section (Peripheral Device Configuration) to change this setting. The default setting is Always On.

1-4 PC Health Monitoring

This section describes the PC health monitoring features of the SUPER X6DA8-G/X6DAE-G/X6DA8-G2/X6DAE-G2. All have an onboard System Hardware Monitor chip that supports PC health monitoring.

Onboard Voltage Monitors for the CPU Cores, Chipset Voltage, +3.3V, +5V, +12V, -12V and +3.3V Standby

An onboard voltage monitor will scan these voltages continuously. Once a voltage becomes unstable, a warning is given or an error message is sent to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Fan Status Monitor with Firmware/Software On/Off Control

The PC health monitor can check the RPM status of the cooling fans. The onboard 4-pin CPU and chassis fans are controlled by the power management functions. The thermal fan is controlled by the overheat detection logic.

Environmental Temperature Control via Supero DoctorIII

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. It can continue to monitor for overheat conditions even when the CPU is in sleep mode. Once it detects that the CPU temperature is too high, it will automatically turn on the thermal control fan to prevent any overheat damage to the CPU. The onboard chassis thermal circuitry can monitor the overall system temperature and alert users when the chassis temperature is too high.

CPU Fan Auto-Off in Sleep Mode

The CPU fan activates when the power is turned on. It continues to operate when the system enters Standby mode. When in sleep mode, the CPU will not run at full power, thereby generating less heat.

CPU Overheat LED and Control

This feature is available when the user enables the CPU overheat warning function in the BIOS. This allows the user to define an overheat temperature. When this temperature is exceeded, both the overheat fan and the warning LED are triggered.

System Resource Alert (via Supero DoctorIII)

This feature is available when used with Intel's LANDesk Client Manager (optional). LDCM is used to notify the user of certain system events. For example, if the system is running low on virtual memory and there is insufficient hard drive space for saving the data, you can be alerted of the potential problem.

Auto-Switching Voltage Regulator for the CPU Core

The auto-switching voltage regulator can auto-detect and regulate power supply to the CPU. This will allow the regulator to run cooler and thus make the system more stable.

1-5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers. This also includes consumer devices connected to the PC such as VCRs, TVs, telephones and stereos.

In addition to enabling operating system-directed power management, ACPI provides a generic system event mechanism for Plug and Play and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with both Windows 2000 and Windows NT 5.0.

Microsoft OnNow

The OnNow design initiative is a comprehensive, system-wide approach to system and device power control. OnNow is a term for a PC that is always on but appears to be off and responds immediately to user or other requests.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will wake-up and the LED will automatically stop blinking and remain on.

Main Switch Override Mechanism

When an ATX power supply is used, the power button can function as a system suspend button to make the system enter a SoftOff state. The monitor will be suspended and the hard drive will spin down. Depressing the power button again will cause the whole system to wake-up. During the SoftOff state, the ATX power supply provides power to keep the required circuitry in the system alive. In case the system malfunctions and

you want to turn off the power, just depress and hold the power button for 4 seconds. This option can be set in the Power section of the BIOS Setup routine.

External Modem Ring-On (WOR)

Wake-up events can be triggered by a device such as the external modem ringing when the system is in the SoftOff state. Note that external modem ring-on can only be used with an ATX 2.01 (or above) compliant power supply.

1-6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates.

The SUPER X6DA8-G/X6DAE-G/X6DA8-G2/X6DAE-G2 accommodates ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. You should use one that will supply at least 400W of power (***Note: a 12V 8-pin power connection (J1D1) is required for CPU power consumption, and an additional 12V 4-pin power connection (J32) is also recommended for heavy loading configurations.)** Also your power supply must supply 1.5A for the Ethernet ports. It is strongly recommended that you use a high quality power supply that meets ATX power supply Specification 2.02 or above. It must also be SSI compliant (info at http://www.ssiforum.org/). Additionally, in areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

1-7 Super I/O

The disk drive adapter functions of the Super I/O chip include a floppy disk drive controller that is compatible with industry standard 82077/765, a data separator, write pre-compensation circuitry, decode logic, data rate selection, a clock generator, drive interface control logic and interrupt and DMA logic. The wide range of functions integrated onto the Super I/O greatly reduces the number of components required for interfacing with floppy disk drives. The Super I/O supports 360 K, 720 K, 1.2 M, 1.44 M or 2.88 M disk drives and data transfer rates of 250 Kb/s, 500 Kb/s or 1 Mb/s.It also

provides two high-speed, 16550 compatible serial communication ports (UARTs), one of which supports serial infrared communication. Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O supports one PC-compatible printer port (SPP), Bi-directional Printer Port (BPP) , Enhanced Parallel Port (EPP) or Extended Capabilities Port (ECP).

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through an SMI or SCI function pin. It also features auto power management to reduce power consumption.

The IRQs, DMAs and I/O space resources of the Super I/O can flexibly adjust to meet ISA PnP requirements, which support ACPI and APM (Advanced Power Management).

Appendix B

Latest prices for **SUPERMICRO SUPER X6DA8-G2 - mainboard - extended ATX - E7525**

Price Range: $562-1101

Manufacturer: Super Micro

Part number: MBD-X6DA8-G2-O

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eCOST.com *Your Online Discount SuperStore* Store Profile | Buy Now	Store rating	In stock: Yes	**$908.32** Great Value + Handling Fee as of 08/17/2004	
PCNation.com Store Profile | Buy Now	Store rating	In stock: Yes	**$578.34** as of 08/04/2004	
PC Mall Store Profile | Buy Now	Store rating	In stock: Yes	**$1101.99** as of 08/17/2004	
Trio Computers Store Profile | Buy Now	Store rating	In stock: YES	**$594.95** as of 08/17/2004	
TheNerds.net Store Profile | Buy Now	Store rating	In stock: 6	**$578.34** as of 08/17/2004	
LA Computer Center Store Profile | Buy Now	Store rating	In stock: Yes	**$639.84** as of 08/17/2004	
2Buystore.com Store Profile | Buy Now	Store rating	In stock: Yes	**$578.64** as of 08/17/2004	
Compuadds Store Profile | Buy Now	Store rating	In stock: Yes	**$562.62** as of 08/17/2004	

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PcSuperDeals Store Profile | Buy Now	★★★★★ Store rating	In stock: Yes	**$576.68** as of 08/16/2004
MacMall Store Profile | Buy Now	★★★★½ Store rating	In stock: Yes	**$1101.99** as of 08/17/2004
PC Universe Store Profile | Buy Now	★★★★★ Store rating	In stock: In Stock	**$587.58** as of 08/17/2004

*Shipping costs are estimates and may vary slightly from stores exact shipping costs.

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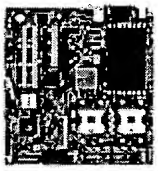
Latest prices for **SUPERMICRO SUPER X6DAE-G2 - mainboard - extended ATX - E7525**

Search Shopper.com



Price Range: $487-943

Manufacturer: Super Micro

Part number: MBD-X6DAE-G2-O

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eCOST.com *Your Online Discount SuperStore* Store Profile | Buy Now	Store rating	In stock: Yes	**$778.06** Great Value + Handling Fee as of 08/17/2004	
PC Mall Store Profile | Buy Now	Store rating	In stock: Yes	**$943.99** as of 08/17/2004	
PCNation.com Store Profile | Buy Now	Store rating	In stock: Yes	**$507.14** as of 08/04/2004	
2Buystore.com Store Profile | Buy Now	Store rating	In stock: Yes	**$495.66** as of 08/17/2004	
Trio Computers Store Profile | Buy Now	Store rating	In stock: YES	**$509.63** as of 08/17/2004	
TheNerds.net Store Profile | Buy Now	Store rating	In stock: 100	**$495.40** as of 08/17/2004	
MacMall Store Profile | Buy Now	Store rating	In stock: Yes	**$943.99** as of 08/17/2004	
PcSuperDeals Store Profile | Buy Now	Store rating	In stock: Yes	**$498.93** as of 08/16/2004	
PC Universe	Store rating	In stock: In Stock	**$508.02**	

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LA Computer Center Store Profile | Buy Now	★★★★★ Store rating	In stock: Yes	**$571.92** as of 08/17/2004
Compuadds Store Profile | Buy Now	★★★★★ Store rating	In stock: Yes	**$487.19** as of 08/17/2004

*Shipping costs are estimates and may vary slightly from stores exact shipping costs.

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Latest prices for **Supermicro 'X6DA8-G' E7525 Chipset Server Motherboard For Dual Intel XEON CPU -**

Price Range: $537-633

Manufacturer: Super Micro

Part number: X6DA8-G-O

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Page Computer Store Profile | Buy Now	★★★★★ Store rating	In stock: Yes	**$541.89** as of 08/17/2004	
Computers4SURE.com Store Profile | Buy Now	★★★★☆ Store rating	In stock: Yes	**$614.95** as of 08/17/2004	
PcSuperDeals Store Profile | Buy Now	★★★★★ Store rating	In stock: Yes	**$564.10** as of 08/16/2004	
Trio Computers Store Profile | Buy Now	★★★★★ Store rating	In stock: YES	**$573.56** as of 08/17/2004	
Computers All Services Store Profile | Buy Now	★★★★★ Store rating	In stock: Yes	**$567.15** as of 08/17/2004	
Ahead Technologies Store Profile | Buy Now	★★★★★ Store rating	In stock: 15	**$633.39** as of 08/17/2004	
Ebuyer Store Profile | Buy Now	★★★★★ Store rating	In stock: 15	**$564.90** as of 08/17/2004	
TheNerds.net	★★★★★ Store rating	In stock: 15	**$559.58**	

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EMICROX.COM Store Profile | Buy Now	★★★½☆ Store rating	In stock: 2	**$609.00** as of 08/17/2004

*Shipping costs are estimates and may vary slightly from stores exact shipping costs.

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Latest prices for **SUPERMICRO SUPER X6DAE-G - mainboard - extended ATX - E7525**

Search Shopper.com

Price Range: $462-894

Manufacturer: Super Micro

Part number: MBD-X6DAE-G-O

User opinions: Write a review

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eCOST.com *Your Online Discount SuperStore* Store Profile | Buy Now	Store rating	In stock: Yes	**$738.11** Great Value + Handling Fee as of 08/17/2004	**Price + Shipping + Tax cost** **To calculate "YOUR" shipping, cost:** **Enter ZIP Code:** By entering your zip code above v and display applicable sales tax, s total price ("Total cost") based on
Buy.com Store Profile | Buy Now	Store rating	In stock: YES	**$532.99** ORDER NOW SHIPS TODAY as of 08/17/2004	
PC Mall Store Profile | Buy Now	Store rating	In stock: Yes	**$894.99** as of 08/17/2004	
PCNation.com Store Profile | Buy Now	Store rating	In stock: Yes	**$481.48** as of 08/04/2004	
MacMall Store Profile | Buy Now	Store rating	In stock: Yes	**$894.99** as of 08/17/2004	
PcSuperDeals Store Profile | Buy Now	Store rating	In stock: Yes	**$473.32** as of 08/16/2004	
Compuadds Store Profile | Buy Now	Store rating	In stock: Yes	**$462.43** as of 08/17/2004	
Trio Computers Store Profile | Buy Now	Store rating	In stock: YES	**$483.47** as of 08/17/2004	

LA Computer Center Store Profile | Buy Now	★★★★★ Store rating	In stock: Yes	**$542.56** as of 08/17/2004
TheNerds.net Store Profile | Buy Now	★★★★★ Store rating	In stock: 9	**$469.98** as of 08/17/2004
2Buystore.com Store Profile | Buy Now	★★★★½ Store rating	In stock: Yes	**$470.22** as of 08/17/2004
PC Universe Store Profile | Buy Now	★★★★★ Store rating	In stock: In Stock	**$481.94** as of 08/17/2004

*Shipping costs are estimates and may vary slightly from stores exact shipping costs.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/689,716 Confirmation No. : 3956
Applicant : Nelson GONZALEZ, et al.
Filed : October 22, 2003
TC/A.U. : 2181
Examiner : Not Yet Assigned
Title : Motherboard for Supporting Multiple Graphics Cards

Docket No. : 19463-0002
Customer No. : 24633

Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(b)

Sir:

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b), Applicant brings to the attention of the Examiner the documents listed on the attached Form PTO-1449, which the Examiner may deem relevant to the patentability of the above-identified application.

The USPTO has waived the requirements under 37 CFR 1.98(a)(2)(I) to submit copies of U.S. Patent and U.S. Patent applications, publications when citing and submitting an Information Disclosure Statement in a patent application filed after June 30, 2003, and International Application that have entered the National Stage under 37 U.S.C. 371 after June 30, 2003. Accordingly, copies of these types of documents are not being supplied in connection with this application. Reference is being made to PRE-OG Notice from the Office of Patent Legal Administration dated July 25, 2003, stating an Information Disclosure Statement may be filed without copies of U.S. patent and published applications for patent applications filed after June 30, 2003.

This information disclosure statement is being filed within one of the following time periods: within three months of the filing date of this application other than a continued prosecution application, or within three months of the date of entry into the national stage of this international application, or before the mailing date of a first Office Action on the merits, or before the mailing of a first Office action after the filing of a request for continued examination under §1.114. Therefore, no certification under 37 C.F.R. § 1.97(e) or fee under 37 C.F.R. §1.17(p) is required.

Applicant respectfully requests that the Examiner consider the listed documents and evidence that consideration by making appropriate notations on the attached form.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission the listed documents are material or constitute "prior art." If the Examiner applies the documents as "prior art" against any claims in the application and Applicant determines that the cited documents do not constitute "prior art" under United States law, Applicant reserves the right to present to the Office the relevant facts and law regarding the appropriate status of such document.

Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed document, should the document be applied against the claims of the present application.

Except for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No.

50-1349. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

HOGAN & HARTSON LLP

Dated: August 11, 2004

By: _____
Celine Jimenez Crowson
Reg. No. 40,357

Ajit J. Vaidya
Reg. No. 43,214

HOGAN & HARTSON LLP
555 13th Street, N.W.
Washington, D.C. 20004
(202) 637-5600
Customer No. 24633

FORM PTO-1449 (Modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)	ATTY. DOCKET NO. 19463-0002	APPLICATION NO. 10/689,716
	APPLICANT Nelson GONZALEZ, et al.	
	FILING DATE October 22, 2003	GROUP 2181

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		PATENT NUMBER	ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		5,799,204		Pesto, Jr.			
		5,892,964		Horan et al.			
		5,914,727		Horan et al.			
		5,937,173		Olarig et al.			
		6,006,289		James et al.			
		6,088,043		Kelleher et al.			
		6,108,739		James et al.			
		6,141,021		Bickford et al.			
		6,205,119		Kaczynski			
		6,275,240		Riffault			
		6,304,244		Hawkins et al.			
		6,389,487		Grooters			
		6,477,603		Locker et al.			
		6,549,963		Sayles			
		6,560,659		Tobias et al.			
		6,597,665		Van Loo et al.			
		2001/0052038		Fallon et al.			
		2003/0081391		Mowery et al.			
		2003/0081630		Mowery et al.			

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449 (Modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. 19463-0002	APPLICATION NO. 10/689,716
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)	APPLICANT Nelson GONZALEZ, et al.	
	FILING DATE October 22, 2003	GROUP 2181

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

		DOCUMENT NUMBER	PUBLISHED DATE	COUNTRY	CLASS	SUBCLASS	ABSTRACT Yes	ABSTRACT No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Intel® 82915G Graphics and Memory Controller Hub (GMCH) June 2004
		Intel® 82915P Memory Controller Hub (MCH), Datasheet, June 2004

EXAMINER	DATE CONSIDERED

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